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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,084	08/24/2005	Hakan Engqvist	1510-1097	2895

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209 Madison Street  
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ALEXANDRIA, VA 22314

EXAMINER
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KOSLOW, CAROL M

ART UNIT	PAPER NUMBER
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1793

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09/29/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/518,084	<b>Applicant(s)</b> ENGQVIST ET AL.	
	<b>Examiner</b> C. Melissa Koslow	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 28-60 is/are pending in the application.  
4a) Of the above claim(s) 28-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 39-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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This action is in response to applicants' amendment of 22 July 2008. The drawings were received on 22 July 2008. These drawings are acceptable. Therefore the objections over the drawings is withdrawn. The amendments to the specification has overcome the objections to the disclosure with respect to the use of "phosphor". The amendments to the claims have overcome the rejections over Re.33,221 and U.S. patents 4,959,104; 5,342,441 and 5,525,148 and the objection to claim 60. Upon reconsideration the 35 USC 112, first paragraph rejection over claims 51 and 52 are withdrawn. Applicant's arguments with respect to the remaining objections and rejections have been fully considered but they are not persuasive.

Claims 28-38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 13 November 2007.

This application contains claims 28-38 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

The disclosure is objected to because of the following informalities:

The specification teaches "a phase that has a capacity to form water soluble phosphate". It is unclear what is meant by this phrase and it is unclear what phases or compounds are encompassed by this phrase. There are no examples of compounds which are encompassed by this phrase. The specification only discloses water soluble phosphate compounds. Appropriate correction is required.

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Applicants arguments with respect to this objection that “the phase would able to provide phosphate or phosphorous-containing ions on an aqueous liquid” is not convincing since this is explanation does not correspond with the clear meaning if this phrase. The clear meaning of the phrase is that the phase forms a water soluble phosphate, not phosphate or phosphorous-containing ions, as argued. The objection is maintained.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The subject matter of claims 3 and 4 are not found in the specification. The specification teaches the maximum volume% of apatite formed during hydration is 30 vol% and that the liquid has a pH of at least 7. The specification is silent as to the pH of the system. The teaching in claims 50 and 58 that the salt can be citrates is not found in the specification. Finally, the teaching of claim 56 that the phosphate ion can be hydro-ammonium phosphate is not found in the specification. It is noted that the subject discussed above is all found in the originally filed claims and thus re part of the originally filed disclosure.

While applicants are correct the claimed subject matter is part of the disclosure, this fact does not affect the objection which is that the claimed subject matter is not found in the specification and thus the specification does not provide antecedent basis for what is being claimed. In addition, applicants states page 1, line 9 teaches the subject matter of claim 4 and page 9, lines 20-32 and the bridging paragraph of pages 9 and 10 teach the subject matter of claims 50 and 58. Nowhere on page 1 is the pH discussed. While page 9, line 1 teaches the pH of the liquid, this is not the pH of the system. Nowhere on pages 9 and 10 are citrates discussed. The objection is maintained.

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Claims 5, 45, 49, 54 and 55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 45 is new matter since the claimed subject matter is not found in the original disclosure. There is no teaching in the originally filed disclosure that the powder material has a crystal size of at most 5 microns. The originally filed disclosure teaches the binder phase of  $C_3A$ , has a particle size of less than 5 microns. These teachings do not support new claim 45.

Claim 5 teaches a  $C_3A$  has a particle size of at most 5 microns, but page 4 teaches  $C_3A$  has a particle size of less than 5 microns. This different in particle size needs to be clarified. Page 5 teaches the amount of a non-difficultly soluble fluoride containing phase is below 10%, but claim 49 teaches the amount is 0.5-10%. This difference in amount needs to be clarified. Page 8 teaches the concentration of phosphate ions in the hydration liquid is 0.01-5 M. Claims 54 and 55 teach the amount of water soluble phosphate or a phase that has a capacity to form water soluble phosphate is present in an amount of 0.01-5 M. Phosphate ions are different from water soluble phosphate or a phase that has a capacity to form water soluble phosphate. This different in composition needs to be clarified.

The amendment to claim 5 did not overcome the discrepancy in the particle size between that claimed and that taught in the specification. The arguments with respect to claim 45 are not convincing since the crystals in layers 2 and/or 3 is that of unreacted CA or the hydrated composition produced from the claimed system. These crystals are not the powdered material of

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claims 1 and 45. The fact claims 49, 54 and 55 were original claims does not overcome the rejection which is based on discrepancies between what is claimed and what is taught in the specification. The rejection is maintained.

Claims 1-4 and 39-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-4 and 39-60 are indefinite since it is unclear what is meant by “a phase that has a capacity to form water soluble phosphate” and it is unclear what phases or compounds are encompassed by this phrase. There are no examples of compounds which are encompassed by this phrase. The specification only discloses water soluble phosphate compounds. Claim 47 is indefinite since it is unclear if these grains are composed of the water soluble phosphate, phase that has a capacity to form water soluble phosphate or a different phosphate composition. Claims 54 and 55 are duplicates since there is no indication in the specification that the intended use of the system affects the composition of hydration liquid. Claim 56 is indefinite since hydro-ammonium phosphate is not a phosphate ion. It is a phosphate salt. Finally, claim 60 is indefinite since it teaches the system is hydrated (which means the liquid and powder components are mixed) and formed into a layer. Once the components which define the system are mixed, the system no longer exists.

The argument with respect to “a phase that has a capacity to form water soluble phosphate” is not convincing for the reasons given above. The arguments with respect to claim 47 do not overcome the rejection since claim 46 teaches the powder contains a water soluble phosphate. The fact the specification teaches that apatite can be present in the powder does not

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clarify if the phosphate in claim 47 refers to those argued or the water soluble phosphate of claim 1. The argument with respect to claim 55 and 54 does not overcome since the hydration liquid of claim 1 is a bonding liquid and applicants have not indicated how the bonding hydration liquid of claim 55 is different from the hydration liquid of claim 54. The amendments to claims 56 and 60 do not overcome the rejections. The rejections are maintained.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 40, 41, 43, 46 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 6,143,069.

This reference teaches a hydraulic cement system comprising a powder comprising calcium aluminate; sodium polyphosphate; fly ash, which is a silicate; and water, which has a pH of 7. This system forms hydroxyapatite during hydration (col. 3, lines 19-22). The reference does not teach the volume percentages of hydroxyapatite formed, but since the taught system is identical to that claimed, it must produce a volume percent that falls within the claimed ranges, absent any showing to the contrary. The reference teaches the claimed system.

In response to applicant's argument that the taught cement system is not used as a dental filling material, an implant material or as material used to bond a tooth or bone and a dental filling material and an implant material, a recitation of the intended use of the claimed invention must result in a structural or compositional difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art composition is capable of performing the intended use, then it meets the claim. There has been no showing that the taught material is not capable of the argued intended use. The argument

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with respect to the preferred embodiment of the rejecter are given little weight since there are no amounts in the rejected claims and a reference is not limited to its preferred embodiments.

Column 3, lines 16-22 does not teach that the formation of apatite is optional. It teaches that when sodium polyphosphate is present in the system, apatite formed during the hydration reaction. The fact the reference does not recognize any benefits does not overcome the rejection since the reference teaches the apatite forms. The argument in lines 14-20 on page 28 of the response is given little weight since the claims directed to this argued embodiment are not rejected over the reference. Since the rejection is based on 35 U.S.C. 102(b), obviousness is not a consideration. The rejection is maintained.

Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

This claims would be allowable for the reason given in the previous action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/  
September 30, 2008

/C. Melissa Koslow/  
Primary Examiner  
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